

We claim:-

1. An ampholytic copolymer comprising a molar excess of anionogenic and/or anionic groups, obtainable by free radical polymerization of
 - a) at least one branched C₃-C₅-alkyl acrylate,
 - b) acrylic acid and/or methacrylic acid and
 - c) a monomer composition comprising
 - c1) at least one compound having an α,β -ethylenically unsaturated double bond capable of free radical polymerization and at least one anionogenic and/or anionic group per molecule and
 - c2) at least one compound having an α,β -ethylenically unsaturated double bond capable of free radical polymerization and at least one cationogenic and/or cationic group per molecule,the molar ratio of anionogenic and anionic groups of component c1) to cationogenic and cationic groups of component c2) being about 1 : 1.
2. The copolymer according to claim 1, the component a) comprising tert-butyl acrylate.
3. The copolymer according to claim 1, the component b) consisting of acrylic acid and methacrylic acid, with the proviso that the proportion by weight of acrylic acid is equal to or greater than the proportion by weight of methacrylic acid.
4. The copolymer according to claim 1, the component b) consisting of acrylic acid or methacrylic acid.
5. The copolymer according to any of the preceding claims, the component c1) being selected from α,β -ethylenically unsaturated mono- and dicarboxylic acids, sulfonic acids, phosphonic acids and mixtures thereof.
6. The copolymer according to any of the preceding claims, the component c1) being selected from acrylic acid, methacrylic acid, itaconic acid and mixtures thereof.
7. The copolymer according to any of the preceding claims, the component c2) being selected from esters of α,β -ethylenically unsaturated mono- and dicarboxylic acids with amino alcohols which may be mono- and dialkylated at the amine nitrogen, amides of α,β -ethylenically unsaturated mono- and dicarboxylic acids with diamines which have at least one primary and secondary amino group, N,N-diallylamine, N,N-diallyl-N-alkylamines and the derivatives

thereof, vinyl- and allyl-substituted nitrogen heterocycles, vinyl- and allyl-substituted heteroaromatic compounds and mixtures thereof.

- 5 8. The copolymer according to any of the preceding claims, the component c2) being selected from N-vinylimidazole, N-(tert-butylamino)ethyl (meth)acrylate, N,N-dimethylaminoethyl (meth)acrylate, N-[3-(dimethylamino)propyl]-(meth)acrylamide and mixtures thereof.
- 10 9. The copolymer according to any of the preceding claims, which additionally comprises, as component d), at least one N-vinyl lactam incorporated in the form of polymerized units.
- 15 10. The copolymer according to any of the preceding claims, which additionally comprises, incorporated in the form of polymerized units, at least one further monomer e) which is selected from esters, differing from component a), of α,β -ethylenically unsaturated mono- and dicarboxylic acids with C₁-C₃₀-alkanols and C₁-C₃₀-alkanediols, amides of α,β -ethylenically unsaturated mono- and dicarboxylic acids with C₂-C₃₀-amino alcohols which have a primary or secondary amino group, N-vinylamides of saturated monocarboxylic acids, primary amides of α,β -ethylenically unsaturated monocarboxylic acids and the N-alkyl and N,N-dialkyl derivatives thereof, esters of vinyl alcohol and allyl alcohol with C₁-C₃₀-monocarboxylic acids, vinyl ethers, vinylaromatics, vinyl halides, vinylidene halides, C₁-C₈-monoolefins, nonaromatic hydrocarbons having at least two conjugated double bonds and mixtures thereof.

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11. The copolymer according to claim 10, the component e) being selected from C₁-C₃-alkyl methacrylates, hydroxy-C₁-C₃-alkyl methacrylates and mixtures thereof.
- 30 12. The copolymer according to claim 11, the component e) comprising or consisting of ethyl methacrylate.
13. The copolymer according to any of the preceding claims, which comprises

 - 35 - from 20 to 90, particularly preferably from 25 to 85, % by weight of at least one compound a),
 - from 5 to 40, particularly preferably from 10 to 35, in particular from 13 to 30, % by weight of acrylic acid and/or methacrylic acid b),
 - 40 - from 0.5 to 25, particularly preferably from 1 to 20, in particular from 2 to 16, % by weight of a monomer composition c),
 - from 0 to 85, particularly preferably from 1 to 60, in particular from 5 to 50, % by weight of at least one compound d),
 - 45 - from 0 to 25, particularly preferably from 0.1 to 20, in particular from 1 to

15, % by weight of at least one compound e),

- from 0 to 5, particularly preferably from 0.01 to 3, in particular from 0.1 to 2, % by weight of at least one crosslinking agent f),

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incorporated in the form of polymerized units.

14. The copolymer according to any of claims 1 to 13, which consists of repeating units of

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- tert-butyl acrylate,
- acrylic acid and/or methacrylic acid
- N-(tert-butyl)aminoethyl (meth)acrylate or N-[3-(dimethylamino)propyl]-methacrylamide or N,N-dimethylaminoethyl methacrylate or N-vinylimidazole.

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15. The copolymer according to any of claims 1 to 13, which consists of repeating units of

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- tert-butyl acrylate,
- tert-butyl methacrylate,
- acrylic acid and/or methacrylic acid
- N-(tert-butyl)aminoethyl (meth)acrylate or N-[3-(dimethylamino)propyl]-methacrylamide or N,N-dimethylaminoethyl methacrylate or N-vinylimidazole.

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16. The copolymer according to any of claims 1 to 13, which consists of repeating units of

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- tert-butyl acrylate,
- acrylic acid and/or methacrylic acid,
- N-(tert-butyl)acrylamide and
- N-(tert-butyl)aminoethyl (meth)acrylate or N-[3-(dimethylamino)propyl]-methacrylamide or N,N-dimethylaminoethyl methacrylate or N-vinylimidazole.

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17. The copolymer according to any of claims 1 to 13, which consists of repeating units of

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- tert-butyl acrylate,
- acrylic acid and/or methacrylic acid,
- vinylpyrrolidone and
- N-(tert-butyl)aminoethyl (meth)acrylate or N-[3-(dimethylamino)propyl]-methacrylamide or N,N-dimethylaminoethyl methacrylate or N-vinylimidazole.

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18. The copolymer according to any of claims 1 to 13, which consists of repeating units of
- tert-butyl acrylate,
 - acrylic acid and/or methacrylic acid,
 - N-(tert-butyl)acrylamide,
 - vinylpyrrolidone and
 - N-(tert-butyl)aminoethyl (meth)acrylate or N-[3-(dimethylamino)propyl]-methacrylamide or N,N-dimethylaminoethyl methacrylate or N-vinylimidazole.
19. The copolymer according to any of claims 1 to 13, which comprises, incorporated in the form of polymerized units,
- a) tert-butyl acrylate,
 - b) acrylic acid and/or methacrylic acid,
 - c) N-(tert-butyl)aminoethyl acrylate or N-(tert-butyl)aminoethyl (meth)acrylate or N-[3-(dimethylamino)propyl]methacrylamide or N,N-dimethylaminoethyl methacrylate or N-vinylimidazole,
 - d) if appropriate, vinylpyrrolidone and
 - e) at least one compound which is selected from C₁-C₃-alkyl methacrylates, hydroxy-C₁-C₃-alkyl methacrylates and mixtures thereof,
- with the proviso that the proportion by weight of component a) is equal to or greater than the proportion by weight of component e).
20. The copolymer according to any of claims 1 to 13, which consists of repeating units of
- tert-butyl acrylate,
 - acrylic acid and/or methacrylic acid,
 - N-(tert-butyl)aminoethyl (meth)acrylate or N-vinylimidazole and ethyl methacrylate,
- with the proviso that the proportion by weight of tert-butyl acrylate is equal to or greater than the proportion by weight of ethyl methacrylate.
21. The copolymer according to any of claims 1 to 13, which consists of repeating units of
- tert-butyl acrylate,
 - acrylic acid and/or methacrylic acid,
 - N-vinylpyrrolidone,
 - N-(tert-butyl)aminoethyl (meth)acrylate or N-vinylimidazole and ethyl methacrylate,

with the proviso that the proportion by weight of tert-butyl acrylate is equal to or greater than the proportion by weight of ethyl methacrylate.

- 5 22. The copolymer according to any of claims 1 to 13, which comprises, based in
each case on the total weight of the monomers used for the polymerization,
- 10 - from 20 to 80% by weight, preferably from 25 to 75% by weight, of tert-butyl acrylate and ethyl methacrylate, with the proviso that the proportion by weight of tert-butyl acrylate is equal to or greater than the proportion by weight of ethyl methacrylate,
- 15 - from 5 to 30% by weight, preferably from 10 to 25% by weight, of acrylic acid and/or methacrylic acid,
- from 1 to 20% by weight, preferably from 3 to 15% by weight, of a monomer composition comprising methacrylic acid and N-vinylimidazole or N-(tert-butyl)aminoethyl (meth)acrylate and
- 20 - from 0 to 35% by weight of vinylpyrrolidone,
- incorporated in the form of polymerized units.
23. A polyelectrolyte complex comprising at least one ampholytic copolymer, as
25 defined in any of claims 1 to 22, and at least one polyelectrolyte PE) differing therefrom.
24. A cosmetic or pharmaceutical composition comprising
- 30 A) at least one ampholytic copolymer, as defined in any of claims 1 to 22, or a polyelectrolyte complex, as defined in claim 23, and
- B) at least one cosmetically acceptable carrier.
- 35 25. The composition according to claim 24, the component B) being selected from
- i) water,
- ii) water-miscible organic solvents, preferably C₂-C₄-alkanols, in particular ethanol,
- 40 iii) oils, fats, waxes,
- iv) esters of C₆-C₃₀-monocarboxylic acids with monohydric, dihydric or trihydric alcohols, which esters differ from iii),
- v) saturated acyclic and cyclic hydrocarbons,
- vi) fatty acids,
- 45 vii) fatty alcohols,
- viii) propellants

and mixtures thereof.

- 5 26. The composition according to either of claims 24 and 25, comprising at least one additive which differs from the components A) and B) and is selected from cosmetically active substances, emulsifiers, surfactants, preservatives, perfume oils, thickeners, hair polymers, hair and skin conditioners, graft polymers, water-soluble or dispersible silicone-containing polymers, light stabilizers, bleaches, gel formers, care compositions, colorants, tinting compositions, tanning
- 10 compositions, dyes, pigments, consistency agents, moisturizers, refatting agents, collagen, protein hydrolysis products, lipids, antioxidants, antifoams, antistatic agents, emollients and plasticizers.
- 15 27. The composition according to any of claims 24 to 26 in the form of a gel, of a foam, of a spray or of a mousse, ointment, cream, emulsion, suspension, lotion, milk or paste.
- 20 28. The use of a copolymer, as defined in any of claims 1 to 22, or of a polyelectrolyte complex, as defined in claim 23, in skin cleansing compositions, compositions for the care and for the protection of the skin, nail care compositions, formulations for decorative cosmetics and hair treatment compositions.
- 25 29. The use according to claim 28 in hair treatment compositions as setting compositions and/or as conditioners.
- 30 30. The use according to claim 29, the composition being present in the form of a hair gel, shampoo, foam setting composition, hair lotion, hairspray or hair foam.
- 35 31. The use of a copolymer, as defined in any of claims 1 to 22, or of a polyelectrolyte complex, as defined in claim 23, as an assistant in pharmacy, preferably as or in coating material(s) for solid dosage forms, for modifying rheological properties, as a surface-active compound, as or in adhesive(s) and as or in coating material(s) for the textile, paper, printing and leather industry.